

Hunter Spy 2-4-4. Pedigree - Colchicine-induced tetraploid form of Kinkead Spy; about 1953. Comments:: Fruit: similar to Kinkead Red Northern Spy, except larger size 100 mm; 90% red, stripes; severe bitter pit. Tree: unproductive. Tetraploid 2-4-4 Northern Spy.

The following were donated by Roger D. Way, Cornell University, New York State Agric. Exp. Station, Department of Horticulture, Geneva, New York 14456-0462, United States. Received 06/24/1985.

PI 589204. *Malus domestica* Borkh.

Sweden Spartan. Pedigree - Tetraploid mutation of Spartan; National Fruit Trials in England received in 1965. Comments:: 4X nature verified by C. Pratt, NY State Agr. Exp. Sta. in 1972. Fruit: size much larger than Spartan, 80-100 mm. Skin 90-100% dark red like Spartan but has russet lines, grooves and nonpigmented chimeras. Shape very oblate, irregular, 5-sided. Flesh color, texture and eating quality same as Spartan. Harvest season 5 days earlier. Leaves: middle leaves of shoots reflexed (turned backward). Fruits drop. Not same as hunter 4X Spartan. No commercial value. Tetraploid Spartan. R.D. Way, 1993.

The following were developed by G.H. Howe, New York Agricultural Exp. Station, Geneva, New York, United States; John Einset; W. McIlvain. Donated by Roger D. Way, Cornell University, New York State Agric. Exp. Station, Department of Horticulture, Geneva, New York 14456-0462, United States. Received 06/24/1985.

PI 589205. *Malus domestica* Borkh.

Wrixparent 2-4-4-4. Collected in Unknown. 1940. Pedigree - John Einset claimed it is a tetraploid mutation of Yellow Transparent, but Wrixham McIlvain claimed it is a seedling of Yellow Transparent and G.H. Howe claimed it is synonymous with 'Early Harvest' discovered 1920; introduced. Comments:: Fruits similar to Yellow Transparent, except larger, 75-80 mm. Tree: more spreading than Yellow Transparent; 2-4-4-4 Periclinal Cytochimera (Proc.Am.Soc.Hort.Sci. 58:103. 1951 and Proc.ASHS 55:262. 1950). R.D. Way, 1993.

The following were developed by L. Johnson, Ticonderoga, New York, United States. Donated by Roger D. Way, Cornell University, New York State Agric. Exp. Station, Department of Horticulture, Geneva, New York 14456-0462, United States. Received 06/24/1985.

PI 589206. *Malus domestica* Borkh.

Johnson McIntosh 2-4-4-4. Pedigree - McIntosh but mutation; Type 1 Diploid-Tetraploid chimera, 2-4-4-4. Comments:: Fruit and tree: indistinguishable from McIntosh, except fruit very large, 75-85 mm. Type 1 Tetraploid McIntosh.

The following were developed by H. S. Loop, North East, Pennsylvania, United States. Donated by Roger D. Way, Cornell University, New York State Agric. Exp. Station, Department of Horticulture, Geneva, New York 14456-0462, United States. Received 06/24/1985.

PI 589207. *Malus domestica* Borkh.

Loop Giant Spy. Pedigree - Large-fruited mutation of Northern Spy; planted about 1908; discovered 1925; never introduced. Comments:: Fruit; large; flesh more tender, softer, and more subject to pitter pit than parent. A periclinal cytochimera 2-2-4-4 Tree: poor cropper. Chimeral nature determined at the New York State Agr. Exp. Sta., Geneva, NY. Large-fruited mutation of Northern Spy.